IN THE CLAIMS:

1. (Cancelled)

2. (Previously Presented) A compound having a formula $[KH_mKCO_3]_n$ wherein m and n are each an integer and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

3. (Previously Presented) A compound having a formula $[KH_mKNO_3]^+_n\, nX^-$ wherein m and n are each an integer, X is a singly negatively charged anion, and the hydrogen content of H_m of the compound comprises at least one increased binding energy hydrogen species.

4. (Previously Presented) A compound having a formula $[KHKNO_3]_n$ wherein n is an integer and the hydrogen content H of the compound comprises at least one said binding energy hydrogen species.

5. (Previously Presented) A compound having a formula $[KHKOH]_n$ wherein n is an integer and the hydrogen content H of the compound comprises at least one said binding energy hydrogen species.

6. (Previously Presented) A compound having a formula $[MH_mM^1X]_n$ wherein m and n are each an integer, M and M^1 are each an alkali or alkaline earth cation, X is a singly or doubly negatively charged anion, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

7. (Previously Presented) A compound according to any one of claims 3 or 6, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

8. (Previously Presented) A compound according to claim 6, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

9. (Previously Presented) A compound having a formula $[MH_mM^1X^1]^+_n\, nX^-$ wherein m and n are each an integer, M and M^1 are each an alkali or alkaline earth cation, X and X^1 are a singly or doubly negatively charged anion, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

10. (Previously Presented) A compound according to claim 9, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

11. (Previously Presented) A compound according to claim 9, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

12. (Previously Presented) A compound having a formula $MXSiX^1H_n$ wherein n is 1 or 2, M is an alkali or alkaline earth cation, X and X^1 are with a singly negatively charged anion or a doubly negatively charged anion, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

13. (Previously Presented) A compound according to claim 12, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

14. (Previously Presented) A compound according to claim 12, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

15. (Previously Presented) A compound having a formula $MSiH_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

16. (Previously Presented) A compound having a formula Si_nH_{4n} wherein n is an integer and the hydrogen content H_{4n} of the compound comprises at least one increased binding energy hydrogen species.

17. (Previously Presented) A compound having a formula Si_nH_{3n} wherein n is an integer and the hydrogen content H_{3n} of the compound comprises at least one increased binding energy hydrogen species.

18. (Previously Presented) A compound having a formula $Si_nH_{3n}O_m$ wherein n and m are integers and the hydrogen content H_{3n} of the compound comprises at least one increased binding energy hydrogen species.

19. (Previously Presented) A compound having a formula $Si_xH_{4x-2y}O_y$ wherein x and y are each an integer and the hydrogen content H_{4x-2y} of the compound comprises at least one increased binding energy hydrogen species.

20. (Previously Presented) A compound having a formula $Si_xH_{4x}O_y$ wherein x and y are each an integer and the hydrogen content H_{4x} of the compound comprises at least one increased binding energy hydrogen species.

21. (Previously Presented) A compound having a formula $Si_nH_{4n} \cdot H_2O$ wherein n is an integer and the hydrogen content H_{4n} of the compound comprises at least one increased binding energy hydrogen species.

22. (Previously Presented) A compound having a formula Si_nH_{2n+2} wherein n is an integer and the hydrogen content H_{2n+2} of the compound comprises at least one increased binding energy hydrogen species.

23. (Previously Presented) A compound having a formula $Si_xH_{2x+2}O_y$ wherein x and y are each an integer and the hydrogen content H_{2x+2} of the compound comprises at least one increased binding energy hydrogen species.

24. (Previously Presented) A compound having a formula $Si_nH_{4n-2}O$ wherein n is an integer and the hydrogen content H_{4n-2} of the compound comprises at least one increased binding energy hydrogen species.

25. (Previously Presented) A compound having a formula $MSi_{4n}H_{10n}O_n$ wherein n is an integer, M is an alkali or alkaline earth cation, and the hydrogen content H_{10n} of the compound comprises at least one increased binding energy hydrogen species.

26. (Previously Presented) A compound having a formula $MSi_{4n}H_{10n}O_{n+1}$ wherein n is an integer, M is an alkali or alkaline earth cation, and the hydrogen content H_{10n} of the compound comprises at least one increased binding energy hydrogen species.

27. (Previously Presented) A compound having a formula $M_qSi_nH_mO_p$ wherein q, n, m, and p are integers, M is an alkali or alkaline earth cation, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

28. (Previously Presented) A compound having a formula $M_qSi_nH_m$ wherein q, n, and m are integers, M is an alkali or alkaline earth cation, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

29. (Previously Presented) A compound having a formula $Si_nH_mO_p$ wherein n, m, and p are integers, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

30. (Previously Presented) A compound having a formula Si_nH_m wherein n and m are integers, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

31. (Previously Presented) A compound having a formula $MSiH_n$ wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

32. (Previously Presented) A compound having a formula Si_2H_n wherein n is an integer from 1 to 8, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

33. (Previously Presented) A compound having a formula SiH_n wherein n is an integer from 1 to 8, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

34. (Previously Presented) A compound having a formula SiO_2H_n wherein n is an integer from 1 to 6, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

35. (Previously Presented) A compound having a formula $MSiO_2H_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

36. (Previously Presented) A compound having a formula MSi_2H_n wherein n is an integer from 1 to 14, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

37. (Previously Presented) A compound having a formula M_2SiH_n wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

38. (Previously Presented) A compound according to claim 37, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

39. (Previously Presented) A compound according to claim 37, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

40. (Previously Presented) A compound according to any one of claims 2-6, 9, 12 or 15-37, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydride ion having a binding energy greater than the binding

energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, μ_0 is the permeability of vacuum, m_e is the mass of the electron, μ_e is the reduced electron mass, a_0 is the Bohr radius, and *e* is the elementary charge; (b) hydrogen atom having a binding energy greater than about 13.6 eV; (c) hydrogen molecule having a first binding energy greater than about 15.5 eV; and (d) molecular hydrogen ion having a binding energy greater than about 16.4 eV.

41. (Previously Presented) A compound according to any one of claims 2-6, 9, 12 or 15-37, wherein the increased binding energy species is hydride ion having a binding energy of about 3.0, 6.6, 11.2, 16.7, 22.8 29.3, 36.1, 42.8, 49.4, 55.5, 61.0, 65.6, 69.2, 71.53, 72.4, 71.54, 68.8, 64.0, 56.8, 47.1, 34.6, of 19.2.

42. (Previously Presented) A compound according to any one of claims 2-6, 9, 12 or 15-37, wherein said increased binding energy hydrogen species is a hydride ion having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, μ_0 is the permeability of vacuum, m_e is the mass of the electron, μ_e is the reduced electron mass, a_0 is the Bohr radius, and *e* is the elementary charge.

43. (Previously Presented) A compound according to any one of claims 2-6, 9, 12 or 15-37, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydrino atom having a binding energy of about 13.6 eV/$(1/p)^2$, where p is an integer greater than 1; (b) a hydride ion having a binding energy represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, μ_0 is the permeability of vacuum, m_e is the mass of the electron, μ_e is the reduced electron mass, a_0 is the Bohr radius, and *e* is the elementary charge; (c) a trihydrino molecular ion, H_3^+ (1/p), having a binding energy of about 22.6/$(1/p)^2$ eV; (d) an increased binding energy hydrogen molecule having a binding energy of about 15.5/$(1/p)^2$ eV;

and (e) an increased binding energy hydrogen molecular ion with a binding energy of about $16.4/(1/p)^2$ eV.

44. (Previously Presented) A compound according to claim 43, wherein p is 2 to 200.

45. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $[KH_mKCO_3]_n$ wherein m and n are each an integer and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

46. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $[KH_mKNO_3]^+_n\, nX^-$ wherein m and n are each an integer, X is a singly negatively charged anion, and the hydrogen content of H_m of the compound comprises at least one increased binding energy hydrogen species.

47. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $[KHKNO_3]_n$ wherein n is an integer and the hydrogen content H of the compound comprises at least one said binding energy hydrogen species.

48. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $[KHKOH]_n$ wherein n is an integer and the hydrogen content H of the compound comprises at least one said binding energy hydrogen species.

49. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $[MH_mM^1X]_n$ wherein m and n are each an integer, M and M^1 are each an alkali or alkaline earth cation, X is a singly or doubly

negatively charged anion, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

50. (Previously Presented) A dopant according to any one of claims 46 or 49, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

51. (Previously Presented) A dopant according to claim 49, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

52. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $[MH_mM^1X^1]^+_n nX^-$ wherein m and n are each an integer, M and M^1 are each an alkali or alkaline earth cation, X and X^1 are a singly or doubly negatively charged anion, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

53. (Previously Presented) A dopant according to claim 52, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

54. (Previously Presented) A dopant according to claim 52, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

55. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $MXSiX^1H_n$ wherein n is 1 or 2, M is an alkali or alkaline earth cation, X and X^1 are with a singly negatively charged anion or a doubly

negatively charged anion, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

56. (Previously Presented) A dopant according to claim 55, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

57. (Previously Presented) A dopant according to claim 55, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

58. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $MSiH_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

59. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula Si_nH_{4n} wherein n is an integer and the hydrogen content H_{4n} of the compound comprises at least one increased binding energy hydrogen species.

60. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula Si_nH_{3n} wherein n is an integer and the hydrogen content H_{3n} of the compound comprises at least one increased binding energy hydrogen species.

61. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $Si_nH_{3n}O_m$ wherein n and m are integers and

the hydrogen content H_{3n} of the compound comprises at least one increased binding energy hydrogen species.

62. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $Si_xH_{4x-2y}O_y$ wherein x and y are each an integer and the hydrogen content H_{4x-2y} of the compound comprises at least one increased binding energy hydrogen species.

63. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $Si_xH_{4x}O_y$ wherein x and y are each an integer and the hydrogen content H_{4x} of the compound comprises at least one increased binding energy hydrogen species.

64. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $Si_nH_{4n}\cdot H_2O$ wherein n is an integer and the hydrogen content H_{4n} of the compound comprises at least one increased binding energy hydrogen species.

65. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula Si_nH_{2n+2} wherein n is an integer and the hydrogen content H_{2n+2} of the compound comprises at least one increased binding energy hydrogen species.

66. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $Si_xH_{2x+2}O_y$ wherein x and y are each an integer and the hydrogen content H_{2x+2} of the compound comprises at least one increased binding energy hydrogen species.

67. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $Si_nH_{4n-2}O$ wherein n is an integer and the hydrogen content H_{4n-2} of the compound comprises at least one increased binding energy hydrogen species.

68. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $MSi_{4n}H_{10n}O_n$ wherein n is an integer, M is an alkali or alkaline earth cation, and the hydrogen content H_{10n} of the compound comprises at least one increased binding energy hydrogen species.

69. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $MSi_{4n}H_{10n}O_{n+1}$ wherein n is an integer, M is an alkali or alkaline earth cation, and the hydrogen content H_{10n} of the compound comprises at least one increased binding energy hydrogen species.

70. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $M_qSi_nH_mO_p$ wherein q, n, m, and p are integers, M is an alkali or alkaline earth cation, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

71. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $M_qSi_nH_m$ wherein q, n, and m are integers, M is an alkali or alkaline earth cation, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

72. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $Si_nH_mO_p$ wherein n, m, and p are integers,

and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

73. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula Si_nH_m wherein n and m are integers, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

74. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $MSiH_n$ wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

75. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula Si_2H_n wherein n is an integer from 1 to 8, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

76. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula SiH_n wherein n is an integer from 1 to 8, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

77. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula SiO_2H_n wherein n is an integer from 1 to 6, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

78. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula $MSiO_2H_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

79. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula MSi_2H_n wherein n is an integer from 1 to 14, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

80. (Previously Presented) A dopant comprising a compound and at least one other element, said compound having a formula M_2SiH_n wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

81. (Previously Presented) according to claim 80, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

82. (Previously Presented) according to claim 80, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

83. (Previously Presented) according to any one of claims 45-49, 52, 55, 58-80, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydride ion having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, μ_0 is the permeability of vacuum, m_e is the mass of the electron, μ_e is the reduced electron mass, a_0 is the Bohr radius, and *e* is the elementary charge; (b) hydrogen atom having a binding energy greater than about 13.6 eV; (c) hydrogen molecule having a first binding energy greater than about 15.5 eV; and (d) molecular hydrogen ion having a binding energy greater than about 16.4 eV.

84. (Previously Presented) according to any one of claims 45-49, 52, 55, 58-80, wherein the increased binding energy species is hydride ion having a binding energy of about 3.0, 6.6, 11.2, 16.7, 22.8 29.3, 36.1, 42.8, 49.4, 55.5, 61.0, 65.6, 69.2, 71.53, 72.4, 71.54, 68.8, 64.0, 56.8, 47.1, 34.6, of 19.2.

85. (Previously Presented) according to any one of claims 45-49, 52, 55, 58-80, wherein said increased binding energy hydrogen species is a hydride ion having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, μ_0 is the permeability of vacuum, m_e is the mass of the electron, μ_e is the reduced electron mass, a_0 is the Bohr radius, and *e* is the elementary charge.

86. (Previously Presented) according to any one of claims 45-49, 52, 55, 58-80, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydrino atom having a binding energy of about 13.6 eV/$(1/p)^2$, where p is an integer greater than 1; (b) a hydride ion having a binding energy represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, μ_0 is the permeability of vacuum, m_e is the mass of the electron, μ_e is the reduced electron mass, a_0 is the Bohr radius, and *e* is the elementary charge; (c) a trihydrino molecular ion, H_3^+ (1/p), having a binding energy of about 22.6/$(1/p)^2$ eV; (d) an increased binding energy hydrogen molecule having a binding energy of about 15.5/$(1/p)^2$ eV; and (e) an increased binding energy hydrogen molecular ion with a binding energy of about 16.4/$(1/p)^2$ eV.

87. (Previously Presented) according to claim 86, wherein p is 2 to 200.

88. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms

with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $[KH_mKCO_3]_n$ wherein m and n are each an integer and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

89. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $[KH_mKNO_3]^+_n\ nX^-$ wherein m and n are each an integer, X is a singly negatively charged anion, and the hydrogen content of H_m of the compound comprises at least one increased binding energy hydrogen species.

90. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $[KHKNO_3]_n$ wherein n is an integer and the hydrogen content H of the compound comprises at least one said binding energy hydrogen species.

91. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $[KHKOH]_n$ wherein n is an integer and the hydrogen content H of the compound comprises at least one said binding energy hydrogen species.

92. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $[MH_mM^1X]_n$ wherein m and n are each an integer, M and M^1 are each an alkali or alkaline earth cation, X is a singly or doubly negatively charged anion, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

93. (Previously Presented) A method according to any one of claims 86 or 92, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

94. (Previously Presented) A method according to claim 92, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

95. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $[MH_mM^1X^1]^+_n\ nX^-$ wherein m and n are each an integer, M and M^1 are each an alkali or alkaline earth cation, X and X^1 are a singly or doubly negatively charged anion, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

96. (Previously Presented) A method according to claim 95, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

97. (Previously Presented) A method according to claim 95, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

98. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $MXSiX^1H_n$ wherein n is 1 or 2, M is an alkali or alkaline earth cation, X and X^1 are with a singly negatively charged anion or a doubly negatively charged anion, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

99. (Previously Presented) A method according to claim 98, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

100. (Previously Presented) A method according to claim 98, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

101. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino

hydride ions with at least one other element to form a compound having a formula $MSiH_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

102. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula Si_nH_{4n} wherein n is an integer and the hydrogen content H_{4n} of the compound comprises at least one increased binding energy hydrogen species.

103. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula Si_nH_{3n} wherein n is an integer and the hydrogen content H_{3n} of the compound comprises at least one increased binding energy hydrogen species.

104. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $Si_nH_{3n}O_m$ wherein n and m are integers and the hydrogen content H_{3n} of the compound comprises at least one increased binding energy hydrogen species.

105. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms

with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $Si_xH_{4x-2y}O_y$ wherein x and y are each an integer and the hydrogen content H_{4x-2y} of the compound comprises at least one increased binding energy hydrogen species.

106. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $Si_xH_{4x}O_y$ wherein x and y are each an integer and the hydrogen content H_{4x} of the compound comprises at least one increased binding energy hydrogen species.

107. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $Si_nH_{4n} \cdot H_2O$ wherein n is an integer and the hydrogen content H_{4n} of the compound comprises at least one increased binding energy hydrogen species.

108. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula Si_nH_{2n+2} wherein n is an integer and the hydrogen content H_{2n+2} of the compound comprises at least one increased binding energy hydrogen species.

109. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms

with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $Si_xH_{2x+2}O_y$ wherein x and y are each an integer and the hydrogen content H_{2x+2} of the compound comprises at least one increased binding energy hydrogen species.

110. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $Si_nH_{4n-2}O$ wherein n is an integer and the hydrogen content H_{4n-2} of the compound comprises at least one increased binding energy hydrogen species.

111. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $MSi_{4n}H_{10n}O_n$ wherein n is an integer, M is an alkali or alkaline earth cation, and the hydrogen content H_{10n} of the compound comprises at least one increased binding energy hydrogen species.

112. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $MSi_{4n}H_{10n}O_{n+1}$ wherein n is an integer, M is an alkali or alkaline earth cation, and the hydrogen content H_{10n} of the compound comprises at least one increased binding energy hydrogen species.

113. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $M_qSi_nH_mO_p$ wherein q, n, m, and p are integers, M is an alkali or alkaline earth cation, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

114. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $M_qSi_nH_m$ wherein q, n, and m are integers, M is an alkali or alkaline earth cation, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

115. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $Si_nH_mO_p$ wherein n, m, and p are integers, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

116. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula

Si_nH_m wherein n and m are integers, and the hydrogen content H_m of the compound comprises at least one increased binding energy hydrogen species.

117. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $MSiH_n$ wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

118. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula Si_2H_n wherein n is an integer from 1 to 8, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

119. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula SiH_n wherein n is an integer from 1 to 8, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

120. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions

hydride ions with at least one other element to form a compound having a formula SiO_2H_n wherein n is an integer from 1 to 6, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

121. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula $MSiO_2H_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

122. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula MSi_2H_n wherein n is an integer from 1 to 14, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

123. (Previously Presented) A method for preparing a compound comprising reacting atomic hydrogen with a catalyst to form hydrino atoms, reacting said hydrino atoms with electrons to form hydrino hydride ions, and reaction at least one of said hydrino hydride ions with at least one other element to form a compound having a formula M_2SiH_n wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content H_n of the compound comprises at least one increased binding energy hydrogen species.

124. (Previously Presented) A method according to claim 123, wherein said singly negatively charged anion is selected from the group consisting of halogen ion, hydroxide ion, hydrogen carbonate ion, and nitrate ion.

125. (Previously Presented) A method according to claim 123, wherein said doubly negative charged anion is selected from the group consisting of carbonate ion, oxide, and sulfate ion.

126. (Previously Presented) A method according to any one of claims 88-92, 95, 98 or 101-123, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydride ion having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

$$\textit{Binding Energy} = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, μ_0 is the permeability of vacuum, m_e is the mass of the electron, μ_e is the reduced electron mass, a_0 is the Bohr radius, and *e* is the elementary charge; (b) hydrogen atom having a binding energy greater than about 13.6 eV; (c) hydrogen molecule having a first binding energy greater than about 15.5 eV; and (d) molecular hydrogen ion having a binding energy greater than about 16.4 eV.

127. (Previously Presented) A method according to any one of claims 88-92, 95, 98 or 101-123, wherein the increased binding energy species is hydride ion having a binding energy of about 3.0, 6.6, 11.2, 16.7, 22.8 29.3, 36.1, 42.8, 49.4, 55.5, 61.0, 65.6, 69.2, 71.53, 72.4, 71.54, 68.8, 64.0, 56.8, 47.1, 34.6, of 19.2.

128. (Previously Presented) A method according to any one of claims 88-92, 95, 98 or 101-123, wherein said increased binding energy hydrogen species is a hydride ion having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, μ_0 is the permeability of vacuum, m_e is the mass of the electron, μ_e is the reduced electron mass, a_0 is the Bohr radius, and e is the elementary charge.

129. (Previously Presented) A method according to any one of claims 88-92, 95, 98 or 101-123, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydrino atom having a binding energy of about 13.6 eV/(1/p)^2, where p is an integer greater than 1; (b) a hydride ion having a binding energy represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, μ_0 is the permeability of vacuum, m_e is the mass of the electron, μ_e is the reduced electron mass, a_0 is the Bohr radius, and *e* is the elementary charge; (c) a trihydrino molecular ion, H_3^+ (1/p), having a binding energy of about $22.6/(1/p)^2$ eV; (d) an increased binding energy hydrogen molecule having a binding energy of about $15.5/(1/p)^2$ eV; and (e) an increased binding energy hydrogen molecular ion with a binding energy of about $16.4/(1/p)^2$ eV.

130. (Previously Presented) A compound according to claim 129, wherein p is 2 to 200.

131. (Previously Presented) A compound having the formula $[KH_mKCO_3]n$ wherein at least one H is a hydrino atom having a binding energy of about $13.6/n^2$ eV, n is a fraction in which the numerator is 1 and denominator an integer greater than one.

132. (New) A compound according to claim 16, wherein the compound is SiH.